JEFFERSON MONTESORI, PWS #7260072
SOURCE WATER ASSESSMENT FINAL REPORT

June 17, 2004

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area, sensitivity factors associated with the wells, and aquifer characteristics.

This report, *Source Water Assessment for Jefferson Montesori, Rigby, Idaho*, describes the public drinking water system, the zone boundaries of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

Final susceptibility scores are derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in other categories results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic contaminants (IOCs, e.g. nitrates, arsenic), volatile organic contaminants (VOCs, e.g. petroleum products), synthetic organic contaminants (SOCs, e.g. pesticides), and microbial contaminants (e.g. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

The Jefferson Montesori drinking water system consists of one ground water source serving approximately 70 people through one (1) connection. In terms of the total susceptibility score, the well rates moderate for IOCs, VOCs, SOCs, and microbial contaminants. The irrigated agricultural land uses that dominate the delineated area influences the scores significantly. The delineation crosses an organic priority area for the pesticide atrazine.

Water chemistry tests are routinely conducted on the Jefferson Montesori drinking water system. Contaminants detected in the drinking water system include the regulated IOCs fluoride, barium, and nitrate but at levels below the maximum contaminant levels (MCLs). Total coliform bacteria were detected multiple times in the distribution system in January and February 2003. No VOCs or SOCs have been detected in the wells.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the Jefferson Montesori, drinking water protection activities should focus on maintaining the requirements of the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). Any future development in the delineated areas should be carefully monitored. Other practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water areas should be implemented. Also, disinfection practices should be implemented if microbial contamination problems continue. No chemicals should be stored or applied within the 50-foot radius of the wellhead. If the school is expanded, no buildings should be placed within 50 feet of the well. Most of the designated areas are outside the direct jurisdiction of the Jefferson Montesori making partnerships with state and local agencies and industry groups critical to the success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations are near urban and residential land use areas. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. There are transportation corridors near the delineations, therefore the State Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). The Jefferson Montesori has formed a drinking water protection planning team and is currently developing a drinking water protection plan with assistance from the Idaho Falls Regional Office of the Idaho Department of Environmental Quality and the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR JEFFERSON MONTESORI, RIGBY, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the rankings of this assessment mean.** Maps showing the delineated source water assessment areas and the inventory of significant potential sources of contamination identified within those areas are attached. The lists of significant potential contaminant source categories and their rankings, used to develop this assessment, are also attached.

Level of Accuracy and Purpose of the Assessment

The Idaho Department of Environmental Quality (DEQ) is required by the EPA to assess the over 2,900 public drinking water sources in Idaho for their relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area, sensitivity factors associated with the wells, and aquifer characteristics. All assessments for sources active prior to 1999 were completed by May of 2003. SWAs for sources activated post-1999 are being developed on a case-by-case basis. The resources and time available to accomplish assessments are limited. Therefore, an in-depth, site-specific investigation to identify each significant potential source of contamination for every public water system is not possible. **This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of this assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The DEQ recognizes that pollution prevention activities generally require less time and money to implement than treating a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

Jefferson Montesori, near Rigby, Idaho serves a community of approximately 70 people through one (1) connection. Jefferson Montesori is located approximately four (4) miles north of Rigby (Figure 1). The public drinking water system for the Jefferson Montesori is comprised of one ground water source.

Water chemistry tests are routinely conducted on the Jefferson Montesori drinking water system. Contaminants detected in the drinking water system include the regulated IOCs fluoride, barium, and nitrate but at levels below the maximum contaminant levels (MCLs). Total coliform bacteria have been detected in the distribution system in January and February 2003. No VOCs or SOCs have been detected in the wells. The delineation crosses an organic priority area for the pesticide atrazine.

Defining the Zones of Contribution - Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ ascertained an approximation for the delineations using a refined computer model approved by the EPA to determine the capture zone delineation for the Jefferson Montesori well. The computer model used site-specific data, assimilated by DEQ from a variety of sources including local area well logs and hydrogeologic reports summarized below (from WGI, 2001).

The source well is located in southeastern Idaho, approximately ten miles southwest of the town of Rexburg. Several rivers including the Snake, Teton, and Henry's Fork flow through the study area. Multiple tributary streams and canals flow across the study area.

The well is completed into alluvium deposits that form the shallow perched aquifer system of the area. The alluvium overlies the basalt flows that form the deep regional aquifer of the region. The perched aquifer is contained within gravel and sand deposits and to a lesser extent silts and clays. The rivers are in direct hydraulic connection with the perched aquifers noted by the corresponding river stage elevations and the ground water table elevations.

The surface water bodies control the ground water flow direction of the perched aquifer system. In the area of these particular source wells, the ground water flow direction is generally to the northwest. Irrigation canals, tributary streams, and the Snake River have the greatest influence on ground water flow within the study area. The aquifer sustains productive amounts of ground water through recharge supplied by annual precipitation and leaking surface water bodies.

The perched aquifer system the source wells are completed in extends from Menan Buttes in the southeast of the study area up to St. Anthony. The western extent of this particular aquifer is the Henrys Fork River that acts as a hydraulic barrier between the shallow aquifers lying on each side of the river. The eastern extent of the aquifer is the basaltic ridges that form just south of Rexburg. This portion of the regional perched aquifer system is known as the Teton Island area aquifer.

The saturated thickness of this perched aquifer ranges from 60 to over 400 feet (WGI, 2001). Depth to water in wells completed in this aquifer are generally shallow, ranging from 5 to 40 feet bgs. Transmissivity of this portion of the aquifer has been previously modeled at 3000 ft^2/day. Hydraulic gradient of the aquifer ranges from .001 to .02 ft/ft (WGI, 2001).

Model Description

The capture zone for the source well was delineated using the WhAEM Model 2000, version 1.04. The model was run by inputting hydrogeologic data collected from well logs, topographic maps, geologic maps, and previous studies conducted in the area. Boundary conditions controlling the ground water flow in the model were inputted based on hydrogeologic data of the area and previous modeling studies. Two scenarios were investigated for these source wells, a summer season and a winter season.

Boundary conditions incorporated into this model include no flow boundaries and constant head boundaries. The no flow boundaries were assigned to the outer limits of the alluvial valley fill. There are two discharge areas of the perched aquifer in which the outer extent of the valley was delineated as a constant head boundary instead of a no flow boundary. The constant head boundary assigned to these two sections of the valley represent ground water discharge areas where the perched system discharges into the deeper regional basalt aquifers. Head values assigned to these discharge areas were based on previous modeling efforts conducted in the area (WGI, 2001).

The rivers dissecting the valley were also incorporated into the model as constant head boundaries. The rivers were delineated and assigned head values based on the river elevations taken from a topographic map. The constant heads assigned to the rivers controls the general direction and gradient of the ground water flow.

The aquifer properties for this aquifer have been previously modeled and calibrated for several source wells (WGI, 2001). Based on these modeling efforts, the following parameters were incorporated to the model:

Aquifer base elevation (ft amsl):	4600
Aquifer thickness (ft):	100
Hydraulic conductivity (ft/day):	30
Recharge rate (ft/year):	0.00032 (winter)

	0.003 (summer)
Porosity:	0.3

Intensive calibration efforts were not required for these wells as the aquifer had been previously modeled and calibrated with the above parameters. The parameters were incorporated into the model for these source wells and simulations were conducted. The simulation resulted in very accurate test point matches on the initial run. The model was then adjusted for the seasonal changes the aquifer experiences.

The winter scenario of this model simulates the aquifer under non-irrigation conditions. The recharge rate of the aquifer was lowered to a rate that simulates natural precipitation and leakage from rivers/streams. The recharge rate was then increased an order of magnitude to simulate the leakage from the numerous canals that surround the source wells. This increase in recharge is distributed evenly over the entire area being modeled and is one attempt at simulating leaking canal systems and application of irrigation water to cropland.

Pumping rates entered into the model were taken from the reported values on the sanitary survey conducted on this system. The pumping rate of the well was reported at 18 gallons per minute (gpm). The pumping rate entered into the model was 27 gpm. This 1.5 times increase in pumping rate is entered into the model as a factor of safety, to include any potential increases in system use in the future.

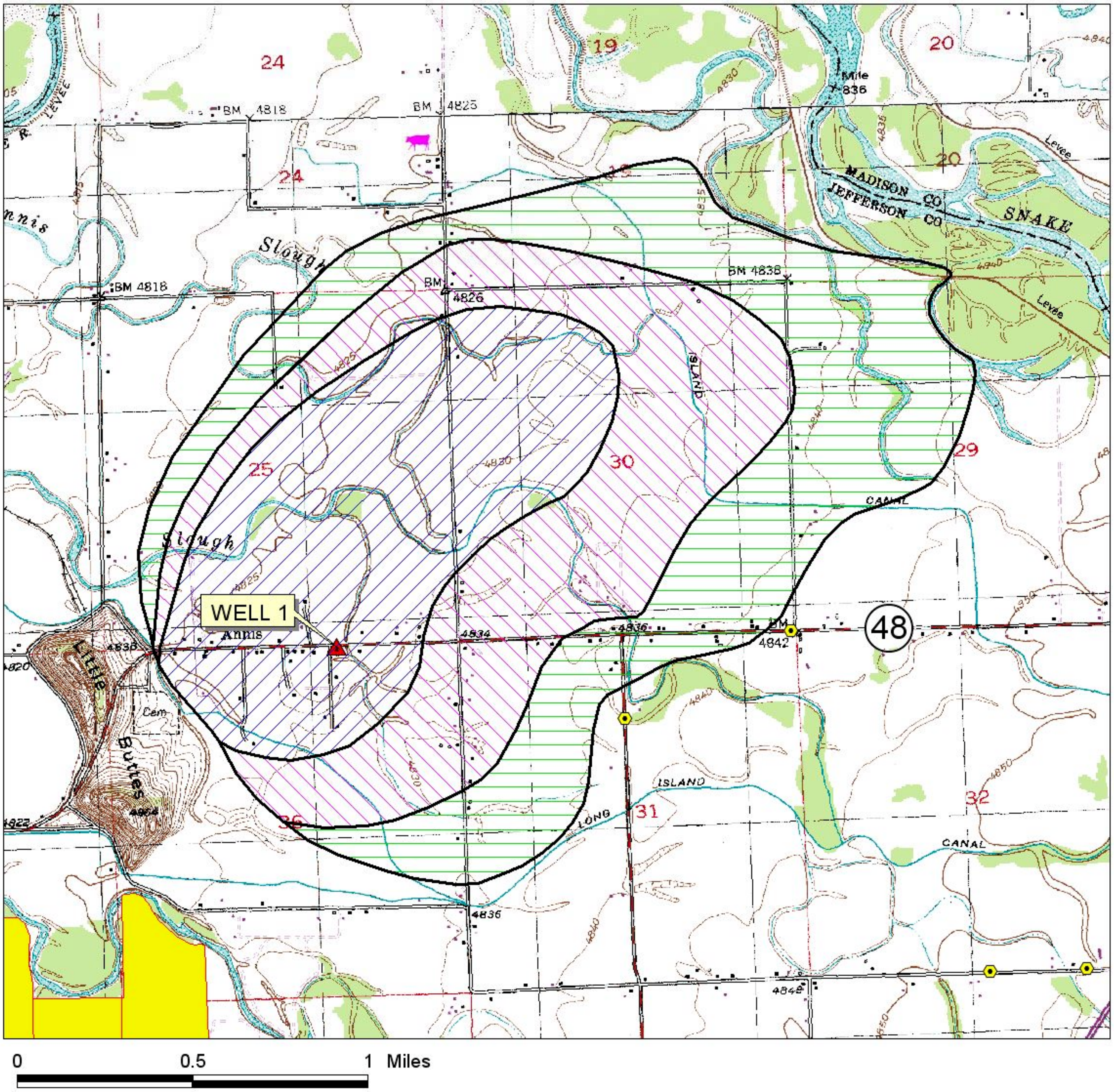
Test points were used to validate the aquifer properties entered into the model. Since these values had been previously calibrated in another model, there was no distinct calibration process required for this system. The data entered into the model represented the actual conditions very well, according to the test points used. The test points were wells completed into the same aquifer as the source wells. The water levels in these wells were taken from well log information and a topographic map. Due to the coarse locating and water level elevation determination, modeled heads within +/- 50 feet of the actual head values are considered acceptable.

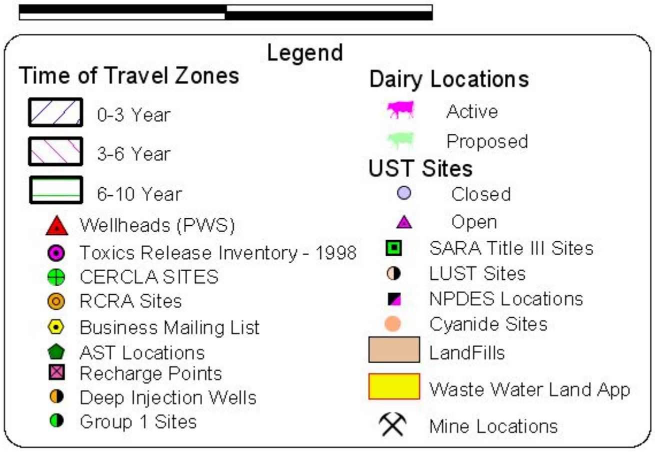
The capture zone presented (Figure 2) in this report are estimates of the actual field conditions based on the model runs conducted. The capture zone is a composite of two scenarios (irrigated and non-irrigated) investigated for this system. The capture zones are based on existing data of the area and previous modeling efforts conducted in the region. Considering these capture zone delineations are estimates, there is potential for the capture zones to become modified as more data becomes available. The actual data used by DEQ in determining the source water assessment delineation areas is available upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of surface water contamination. The

Figure 2. Jefferson Montessori Delineation Map and Potential Contaminant Source Locations





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WELL 1

locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the Jefferson Montesori ground water delineated area consists predominantly of irrigated agricultural land.

It is important to understand that a release may never occur from a potential source of contamination, provided best management practices are used at the facility. Many potential sources of contamination are regulated at the federal level, state level, or both, to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply intake.

Contaminant Source Inventory Process

A contaminant inventory was conducted for the Jefferson Montesori system in Spring 2004. The process involved identifying and documenting potential contaminant sources within the Jefferson Montesori Source Water Assessment Areas through the use of computer databases and Geographic Information System maps developed by DEQ.

State Highway 48 and some Slough canals cross the delineation (Table 1). If a release occurred from either of these corridors, the potential for contamination is raised.

Table 1. Jefferson Montesori Potential Contaminant Inventory

Map ID	Source Description	TOT Zone[1]	Source of Information	Potential Contaminants[2]
	State Highway 48	0-10	GIS Map	IOC, VOC, SOC, M
	Canals	0-10	GIS Map	IOC, VOC, SOC, M

[1]TOT = time-of-travel in years
[2]IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical, M= microbial

Section 3. Susceptibility Analysis

The water system's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Appendix A contains the susceptibility analysis worksheet. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

The hydrologic sensitivity rated moderate for the well (see Table 2). The vadose zone is composed of sand and topsoil. These materials, in general, do not decrease the downward movement as much as fine-grained materials. The depth to the first water is less than 300 feet, being seven (7) feet below ground surface (bgs) at the time of drilling. The soils rate as poor- to moderately-drained as defined by the Natural Resource Conservation Service. The available well log does not show laterally extensive low permeability units.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in Sanitary Surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

The well rates high susceptibility for system construction. The recent sanitary survey (D7HD, 2002) is incomplete and does not indicate whether or not the wellhead and surface seal requirements are maintained or whether the well is protected from surface flooding.

The well was drilled in September of 1992 to a depth of 50 feet bgs. The static water level at the time of drilling was seven (7) feet bgs. The well used 0.250-inch thick, 6-inch diameter casing from ground surface to 50 feet bgs). The well installed a bentonite seal to 18 feet bgs into sand and gravel, which is not a confining layer as required by DEQ (1999) to achieve a lower score.

Though the Jefferson Montesori wells may have met construction standards at the time of installation, current well construction standards are stricter. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all Public Water Systems (PWSs) to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the requirements include casing thickness, well tests, and depth and formation type that the surface seal must be installed into. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Six-inch diameter wells require a casing thickness of at least 0.280 inches. Well tests are required at the design pumping rate for 24 hours or until stabilized drawdown has continued for at least six hours when pumping at 1.5 times the design pumping rate.

Potential Contaminant Sources and Land Use

For the Jefferson Montesori, the well rates moderate land use susceptibility for IOCs, VOCs, SOCs, and microbial contaminants. Agricultural land uses, State Highway 44, and the slough canals of the area increased the score. In addition, the delineation crosses an organics priority area for the SOC atrazine.

Final Susceptibility Ranking

An IOC detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well, despite the land use of the area, because a pathway for contamination already exists. Additionally, the storage or application of any potential contaminants within 50 feet of the wellhead will lead to an automatic high score. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time-of-travel zone (Zone 1B) and much agricultural land contribute greatly to the overall ranking.

Table 2. Summary of the Jefferson Montesori, Susceptibility Evaluation

	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
Source		IOC	VOC	SOC	Microbes		IOC	VOC	SOC	Microbes
North Well	M	M	M	M	M	H	H	H	H	H
South Well	M	M	M	M	M	H	H	H	H	H

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

In terms of total susceptibility, the well rates high susceptibility to all potential contaminant categories (Table 2), primarily due to agricultural land, an incomplete sanitary survey, and because the well used for drinking water appears to be a local, shallow well originally drilled for domestic purposes.

Water chemistry tests are routinely conducted on the Jefferson Montesori drinking water system. Contaminants detected in the drinking water system include the regulated IOCs fluoride, barium, and nitrate but at levels below the MCLs. Total coliform bacteria have been detected in the distribution system in January and February 2003. No VOCs or SOCs have been detected in the wells. The delineation crosses an organic priority area for the pesticide atrazine.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the Jefferson Montesori, drinking water protection activities should focus on maintaining the requirements of the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity). A more complete sanitary survey should be performed. If the sanitary survey shows that the wellhead and surface seal are correctly installed and maintained and that the well is protected from surface flooding, then the overall scores will be reduced from high to moderate for all categories. Any future development in the delineated areas should be carefully monitored. Other practices aimed at reducing the leaching of agricultural chemicals from agricultural land within the designated source water areas should be implemented. Also, disinfection practices should be maintained if microbial contamination becomes a problem. No chemicals should be stored or applied within the 50-foot radius of the wellhead. Most of the designated areas are outside the direct jurisdiction of the Jefferson Montesori making partnerships with state and local agencies and industry groups critical to the success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineations are near urban and residential land use areas. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. There are transportation corridors near the delineations, therefore the State Department of Transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service. Drinking water protection activities for mining should be coordinated with the appropriate state and/or federal agencies responsible for the regulation or cleanup of the mine. Depending on the nature and status of the mine, various agencies could include DEQ, the EPA, the Department of Lands, the Bureau of Land Management, the U.S. Forest Service, or others.

A system must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). The Jefferson Montesori has formed a drinking water protection planning team and is currently developing a drinking water protection plan with assistance from the Idaho Falls Regional Office of DEQ and the Idaho Rural Water Association.

Assistance

Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Idaho Falls Regional DEQ Office (208) 528-2650

State DEQ Office (208) 373-0502

Website: http://www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Ms. Melinda Harper, Idaho Rural Water Association, at 208-343-7001 (mlharper@idahoruralwater.com) for assistance with drinking water protection (formerly wellhead protection) strategies.

References Cited

District Seven Health Department, 2002. Jefferson Montesori Sanitary Survey Report.

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works".

Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.

Idaho Department of Environmental Quality, 1999. Idaho Source Water Assessment Plan.

Idaho Department of Environmental Quality, 1997. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.

Washington Group International (WGI), 2001. Source Area Delineation Report Upper Eastern Snake River Plain Hydrologic Province. Consultant report completed for Idaho Department of Environmental Quality. July 2001.

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with above-ground storage tanks

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of storm water runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (IDEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by IDEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

Appendix A
Jefferson Montesori
Susceptibility Analysis

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

1. System Construction		SCORE			
Drill Date	09/30/1992				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2002			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	NO	1			
	Total System Construction Score	6			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
	Total Hydrologic Score	4			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED AGRICULTUE	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	2	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	2	2	2
(Score = # Sources X 2) 8 Points Maximum		4	4	4	4
Sources of Class II or III leacheable contaminants or	YES	6	2	2	
4 Points Maximum		4	2	2	
Zone 1B contains or intercepts a Group 1 Area	YES	0	0	2	0
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land	4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B		12	10	12	8
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2	
Potential Contaminant Source / Land Use Score - Zone II		5	5	5	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0
Cumulative Potential Contaminant / Land Use Score		22	20	22	10
Weighted Potential Contaminant / Land Use Score		4	4	4	4
4. Final Susceptibility Source Score		14	14	14	14
5. Final Well Ranking		High	High	High	High